Name(s) of Risk Team Members: R. Karol, A. Etkin, A. Warkentien, D. Lederle, J. Scott, J. Benante, C. Carlson, L. Snydstrup, L. Masi, L. Smart, M. Sardzinski	Point Value → Parameter ↓	1	2	3	4	5
Area/Facility Description Title: Collider-Accelerator Department Area/Facility # (if applicable): Facility-Wide FRA 4-07	Occupancy or Use (A)	≤once/year	≤once/month	≤once/week	≤once/shift	>once/shift
Area/Facility Description: Facility-Wide ODH	Severity (B)	First Aid Only	Medical Treatment	Lost Time	Partial Disability	Death or Permanent Disability
Approved by: *E. Lessard* Date: 12/28/06 Rev.#: 0	Likelihood (C)	Extremely Unlikely	Unlikely	Possible	Probable	Multiple
Reason for Revision (if applicable): Annual review				Comments:		

			Risk with Controls in Place					Risk with Additional Controls in Place				
Physical Item or Activity	Hazard(s)	Control(s)	**Occupancy A**	**Severity B**	**Likelihood C**	**Risk* AxBxC**	Control(s) Added to Reduce Risk	**Occupancy A**	**Severity B**	**Likelihood C**	**Risk* AxBxC**	% Risk Reduction
Cryogenic fluids and systems	Oxygen deficiency	ODH analyses, ODH controls, ODH system testing and calibration program, ASSRC reviews, ESRC reviews, training, postings, interlocked emergency exhaust fans, PPE, remote/local audible/visible alarms, emergency response, EMTs, work planning, procedures, POMs, medical clearance, escape pack, MSDS, LOTO, postings, Cryo-system designs to consensus codes, inspections, relief valve testing	5	5	2	50	The C-AD ASSRC has reviewed the controls for ODH safety. See ATS #2838. Additionally, National Safety Council (http://www.nsc.org/lrs/statinfo/odds.htm) indicates the odds of dying due to being confined to or trapped in a low-oxygen environment are 1 in 18,178,125 per year. This is much less than 1 in 10,000 per year, which puts Likelihood in the Extremely Unlikely category.	5	5	1	25	
Gases	Oxygen deficiency, toxic/flammable gas	ODH analyses, ODH controls, training, ASSRC reviews, ESRC reviews, interlocked emergency exhaust fans, remote/local audible/visible alarms, emergency response, EMTs, work planning, POMs, medical clearance, escape pack, MSDS, LOTO, postings, designs to consensus codes, flammable gas alarms, cylinder storage controls, cylinder labels, gas volume limits, inspections, cylinder hydrostatic testing	5	5	2	50	The C-AD ASSRC has reviewed the controls for ODH safety. See ATS #2838. Additionally, National Safety Council (http://www.nsc.org/lrs/statinfo/odds.htm) indicates the odds of dying due to being confined to or trapped in a low-oxygen environment are 1 in 18,178,125 per year. This is much less than 1 in 10,000 per year, which puts Likelihood in the Extremely Unlikely category.	5	5	1	25	
Fire extinguishing agents	Oxygen deficiency	Posting, emergency response, EMTs, LOTO, training, L18A CO2 bypass use of Halon and Inergen	3	5	2	30						
Confined spaces	Oxygen deficiency, toxic/flammable gas	Training, atmospheric testing before entry and periodically, entry procedures, Permits, work planning, LOTO, respirators, forced ventilation, personnel rescue equipment, emergency planning and response, EMTs	2	5	2	20						

Further Description of Controls Added to Reduce Risk:					
*Risk:	0 to 20	21 to 40	41-60	61 to 80	81 or greater
	Negligible	Acceptable	Moderate	Substantial	Intolerable